

I
SIGNAL PEPTIDE

II
AMINO TERMINUS

1 A20 SUBFAMILY	MATKIFSLMLLALSACV*NA	TIFPQCSQAPIASLLPPYLPSMIASVCENPALQPYRL
2 A30 SUBFAMILY	MAAKIFCLIMLLGLSASAATA	SIFPQCSQAPIASLLPPYLSPAMSSVCENPILLPYRL
3 B49 SUBFAMILY	MATKIL*LLALLAL**SATNA	SIIPQCCLAP*S**IPQFLPPVTSMAFEHPAVQAYRI

1	QQAIAASNIPLSPL*FQQSPAL*****SLVQSLVQTIRA	7xQQQQLLPFNQLAA*NPAAYL	QQHIIGGALF
2	QQAIAAGILPLSPLFLQQSSALLQQLPLVHLLAQNIRA	7xQQQQLLPFNQLAALNPAAYL	QQPIIGGALF
3	Q*A*AAS*L*****QQPIAQLQQQSLAHLTIQTIAT	8xQQQQLL**NQL*VANPAAYL	QQPIVGGALF

IV
CARBOXYL
TERMINUS

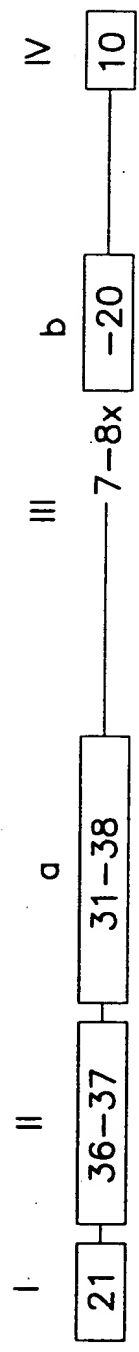


FIG. 1

AAAAUCUGGA AAUGUAAACUU CUUAUUUCUG GUUGGCCACA UACAUCAACC AUAUUAUUGA
GACCAACAAG CAACAUAGAA AGUGGAAUCC AGUAGCAACA ACAGAGCAAC AAUGGCGACC
AAGAUUUUU CCCUCCUUU GCUCUUGCU CUUUCUGCAU GUGUUGCUAA CGGACAAUU
UCCCCUCAAU GCUCACAAGC UCCUAUAGCU UCCCUUCUUC CCCCUAUCCU UCCAUCAAUG
AUAGCUUCAG UAUGUGAAAA CCCAGCUCUU CAGCCCUAUA GGCUCCAACA AGCAAUCGCA
GCAAGCAACA UACCUUUUUC ACCCUUGUUG UUUCAACAAU CGCCAGCCCU AUCUUUGGUG
CAGUCAUUGG UACAAACCAU CAGGGCACAG CAGCUGCAGC AACUCGUGCU ACCUGUGAUC
AACCAAGUAG CUCUGGCAA CCUUCUCCC UACUCUCAGC AACAAACAAU UCUCUCAAUC
AACCAACUGU CUACACUGAA CCCUGCUGCU UAUUGCAGC AACAAACUUA ACCAUUCAGC
CAGCUAGCUA CUGCCUACUC UCAGCAACAA CAACUUCUUC CAUUUAACCA AUUGGCCGCA
CUGAACCCCG CUGCUUAUUU GCAGCAGCAA AUACUACUAC CAUUUAGCCA GCUAGCUGCA
GCAAACCGUG CUUCCUUCUU GACACAGCAA CAGUUGCUGC CUUUCUACCA GCAGUUUGCG
GCUAACCCCG CAACCCUCUU ACAACUACAA CAUUGUUGC CCUUUGUCCA ACUUGCUUUG
ACAGACCCAG CGGCCUCCUA CCAACAACAC AUCAUUGGUG GUGCCUCUUU UUAUAUUGCU
UAUUAUUGU AAUUCAAUAA UAAAGUUUUU UGGAUGAUGU AUGUGGCCAA CCAGAAUAA

FIG. 2

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FIG. 3A

CGAGTGATTC TTAAACCGA TTATTACACA AGTTAACAC ACTAAATTA ACATGGTGA
GCTCACTAAG AATTGGCT AATAATGTGT TCAATTGGTG TGATTTTAAT TGTAAACCACT
ATCGTGCCAT GATTTTTC TAGTGCAAAA TAGCCAAACC AAGCAAAACA TATGTGGCTA
TAGCACGGTA CTAAAAAAG ATCACGTTTT ATCGGTTTGG TTCGTTTGT ATACACCGAT
TCGTTACACA TGTGTAAGG TATTGCATCA CACCATGTG ACCCATGTAT TTGGACAATA
AGCAATGTGT ACACATTTCC ATAACGTAGT GTGGTAACAG TGGGTACATA AACCTGTTAT
CCGAGAGGAA AAACCACTTA TTTATTGTAT TTTATCAAGT TTTATCTTGT TACGTATAAA
GGCTCTCCTT TTTGGTGAAT AAATAACATA AAATAGTTCA AATAGAACA ATGCATATTT
TTATAACCCA ACAAGTAAT CACTAAATGT CAAAACCAAC TAGATACCAT GTCATCTCTA
AATATTGGGT TGTTCATTA GTGATTTACA GTTTTGGTTG ATCTATGGTA TAGTAGAGAT
CCTTATCTTA CTAATATCT TTTTGCAAAA TCGAAAATTA ATCTTGACA AGCACAAGGA
GGAATAGAAT GATTATAAGA AAAACGTTTT AGCTTTTAAT TAGAACGTGT TCGTGTTCCT
CTGAGATGTG TATAAATATC TCTTAGATTA GTAGATAATA TATCGCACAT ATTATTGAGA
GACTCTACAC ATATTATAG AGAATCTAAT CATCTATTAT ATAGCGTGA TAATAACTCT
CCAACCTAGCA ACATAGAAAG CACAATATTG TACCAATAAT GGCAGCCAAA ATATTTTGCC
GGTTGATCGT TGTATCTTTC GTGTTATAAC ATGGTTATTA CCGTCGGTTT TATAAAACGG
TCATTATGCT CTTGGTCTT TCTGCAAGTG CTGCTACGGC GAGCATTTTC CCGCAATGCT
AGTAATACGA GGAACCAAGAA AGACGTTTAC GACGATGCCG CTCGTAAAAG GCGTTACGA
CACAAAGCTCC TATAGCTTCC CTTCTTCCCC CATACTCTC ACCAGCGATG TCTTCAGTAT
GTGTTTCAGG ATATCGAAGG GAAGAAGGG GTATGGAGAG TGGTCGCTAC AGAAGTCATA
GTGAAAATCC AATCTTCTA CCTACAGGA TCCAACAGGC AATCGCAGCA GGCACTCTAC
CACTTTTAGG TTAAGAAGAT GGGATGTCTT AGGTTGTCCG TTAGCGTCGT CCGTAGAATG
CTTTATCACC CTTGTTCTC CAACAATCAT CAGCCCTATT ACAGCAGTTA CCTTGGTGC
GAAATAGTG GAACAAGGAG GTTGTTAGTA GTCGGGATAA TGTCTGTCAAT GGAAACCAAG

ATTATATTGGC ACAAACATC AGGACACAAC AACTACAACA ACTCGTGTCTA GCAAACCTTG
TAAATAACCG TGTTTGTAG TCCCGTGTG TTGATGTTGT TGAGCAGCAT CGTTTGAAC
CTGCCCTACTC TCAGCAACAG CAGTTACCTT TGGTGCAATTT GTTGGCACAA AACATCAGGG
GACGGATGAG AGTCGTTGTC GTCAATGGAA ACCACGTAAA CAACCGTGT TTGTAGTCCC
CACAACAACACT ACAACAACCTC GTGCTAGCAA ACCTTGCTGC CTACTCTCAG CAACAACAGT
GTGTTGTTGA TGTGTTGAG CACGATCGTT TGGAACGACG GATGAGAGTC GTTGTGTCA
TTCTGCCATT CAACCAACTA GCTGCATTGA ACTCTGCTGC TTATTTGCAG CAACAACAAC
AAGACGGTAA GTTGGTTGAT CGACGTAACCT TGAGACGACG AATAAACGTC GTTGTGTG
TACTACCATT CAGCCAGCTA GCTGCTGCCT ACCCCCGGCA ATTTCTTCCA TTCAACCAAC
ATGATGTTAA GTCGGTTCGAT CGACGACGGA TGGGGGCCGT TAAAGAAGGT AAGTTGGTTG
TGGCAGCATT GAACTCTCAT GCTTATGTAC AACAACAACA ACTACTACCA TTCAGCCAGC
ACCGTCGTAA CTTGAGAGTA CGAATACATG TTGTTGTTGT TGATGATGGT AAGTCGGTGC
TAGCTGCTGT GAGCCCTGCT GCCTTCTTGA CACAGCAACA TTTGTTGCCG TTCTACCTGC
ATCGACGACA CTCGGGACGA CGGAAGAACT GTGTCGTTGT AAACAACGGC AAGATGGACG
ACACTGCGCC TAACGTTGGC ACCCTCTTAC AACTGCAACA ATTGCTGCCA TTCGACCAAC
TGTGACGCGG ATTGCAACCG TGGGAGAATG TTGACGTTGT TAACGACGGT AAGCTGGTTG
TTGCTTTGAC AAACCCAGCA GTGTTCTACC AACAAACCCAT CATTTGGTGGT GCCCTCTTTT
AACGAAACTG TTTGGGTCGT CACAAGATGG TTGTTGGGTA GTAACCAACA CGGGAGAAA
AGATTGCTTA TGAGTTATAG TTCAATAATA AAGTTTTTTT TGCTGATATT TGTGGCTTCC
TCTAACGAAT ACTCAATATC AAGTTATTA TTCAAAAAAA ACGACTATAA ACACCGAAG
CAGAAATAAG AAAGTACATT TCTAGATTCT TATGTGCTTC TAGT
GTCTTTATTC TTTCAATGTA AGATCTAAGA ATACACGAAG ATCA

FIG. 3B

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- A. PRIMER 1
5' CCCGGGTAGATAATATATCGCAC 3'
- PRIMER 2
5' CCCGGGCTGCCATTATTGGTACAATATTGTGCTTTCTATG 3'
- B. PRIMER 1
5' CCCGGGCAACCTTGCATGCCTACTCTCAGC 3'
- PRIMER 2
5' CCCGGGTAGTAGTTGTTGTCATGCAATAAGCAGC 3'
- C. PRIMER 1
5' CCCGGGTCTAGATTGCTTATGAGTTATAGTTCAATA
ATAAGTTTTTTTGTCTGATATTGTGGCTTCCAG 3'
- PRIMER 2
5' CCCGGGTCTAGAAATGTACTTTCTTA
TTTCTGGGAAGCCACAAATATCAGC 3'

FIG. 4

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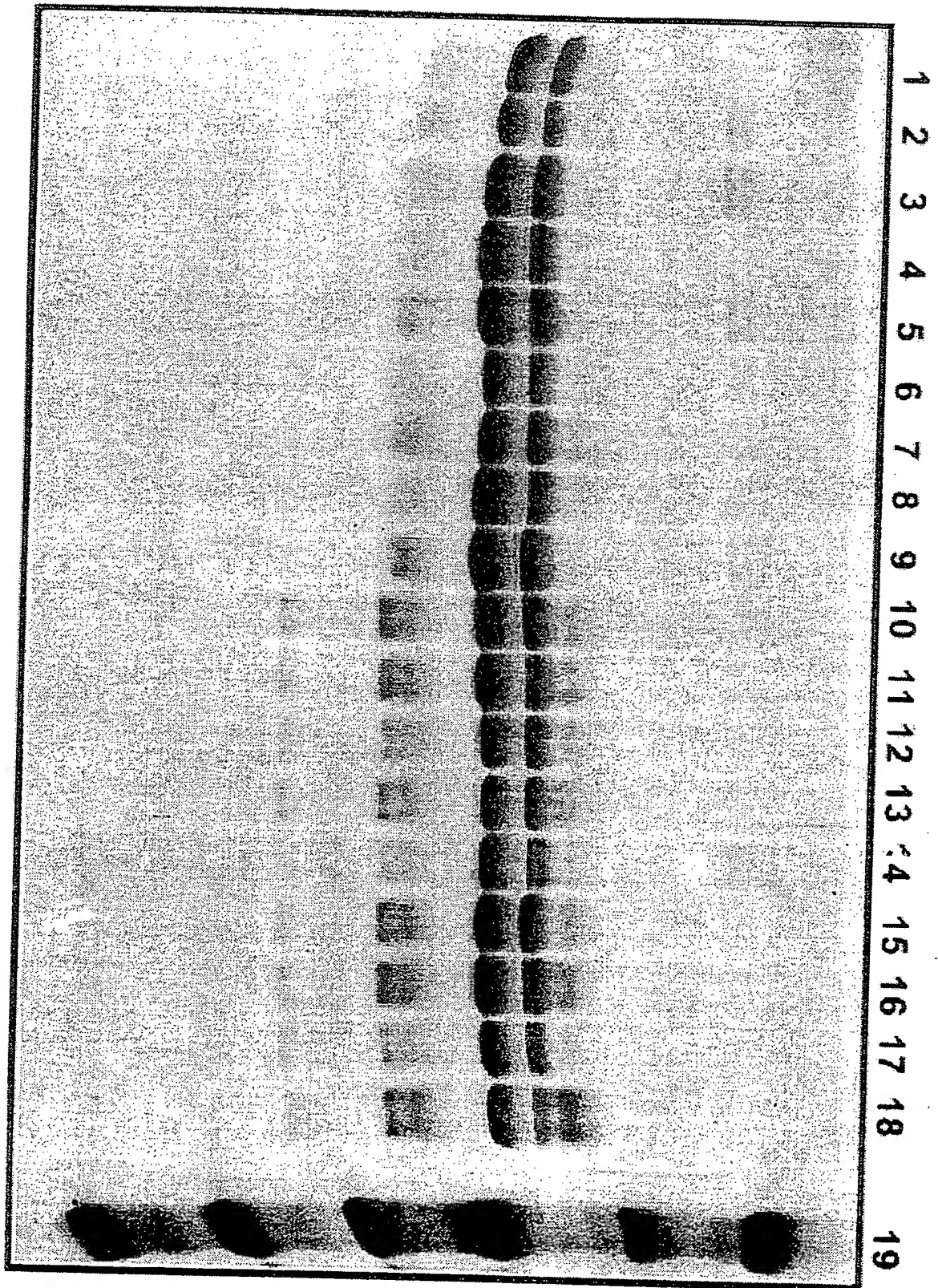


FIG. 5

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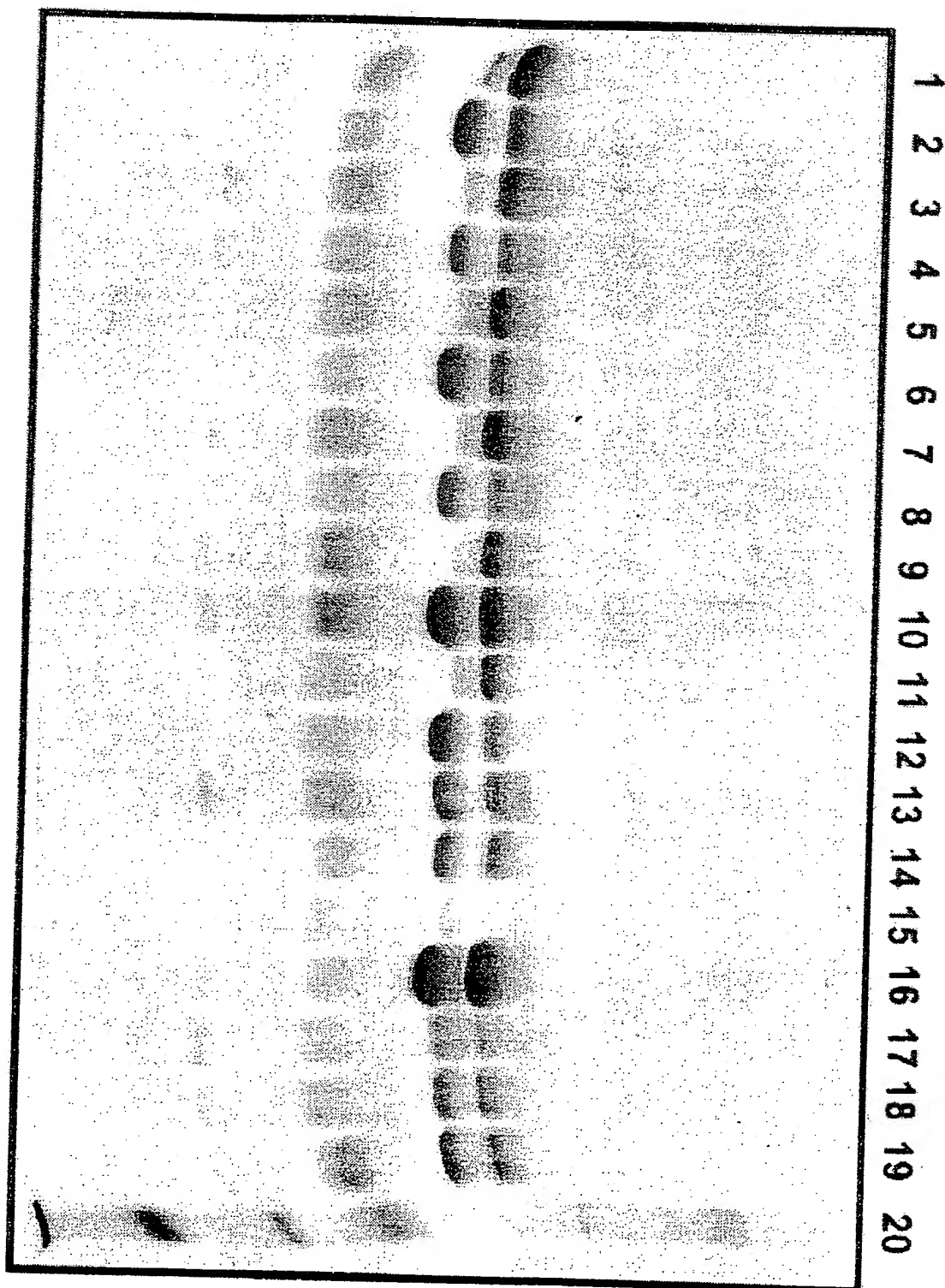


FIG. 6

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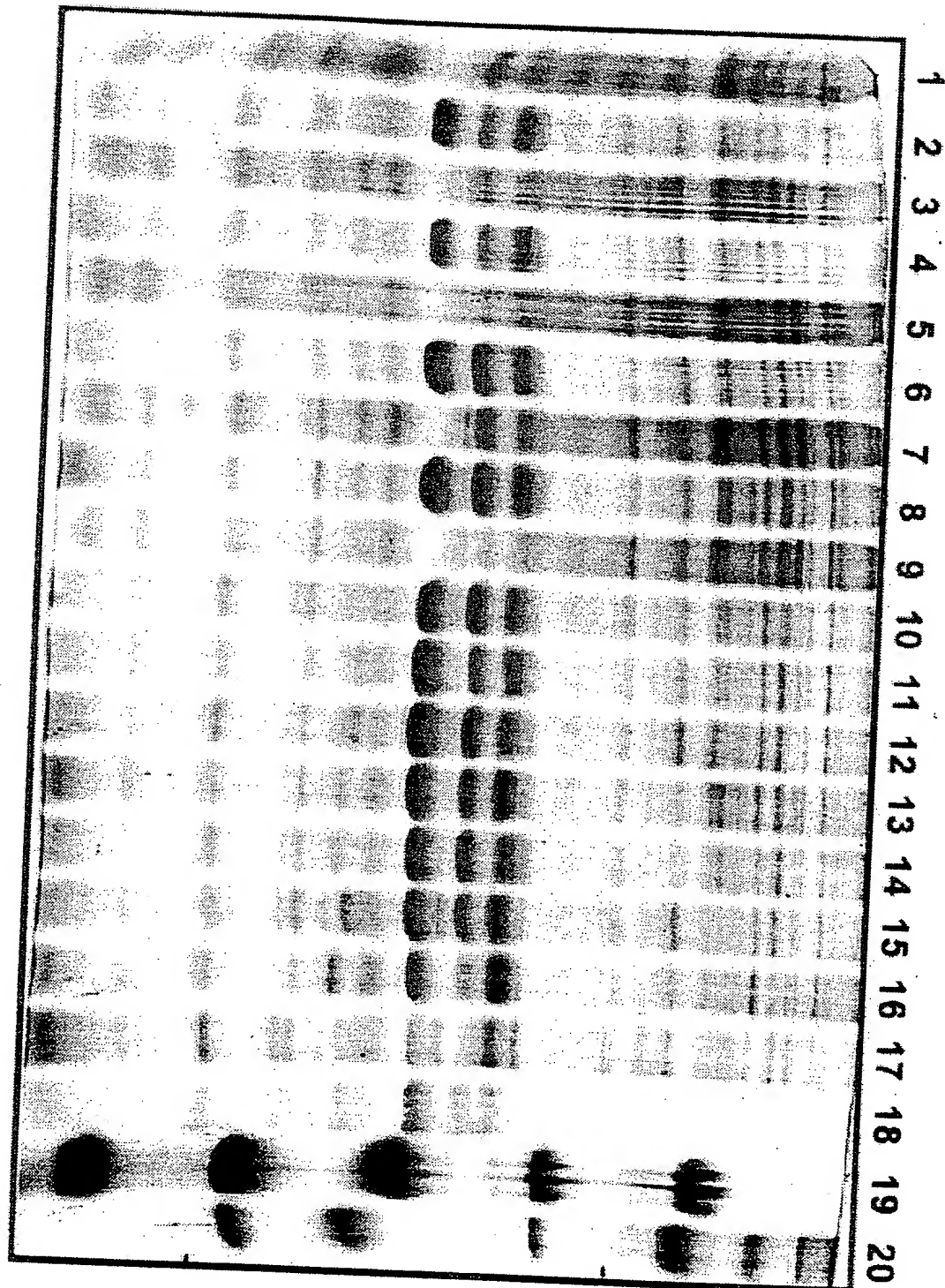


FIG. 7

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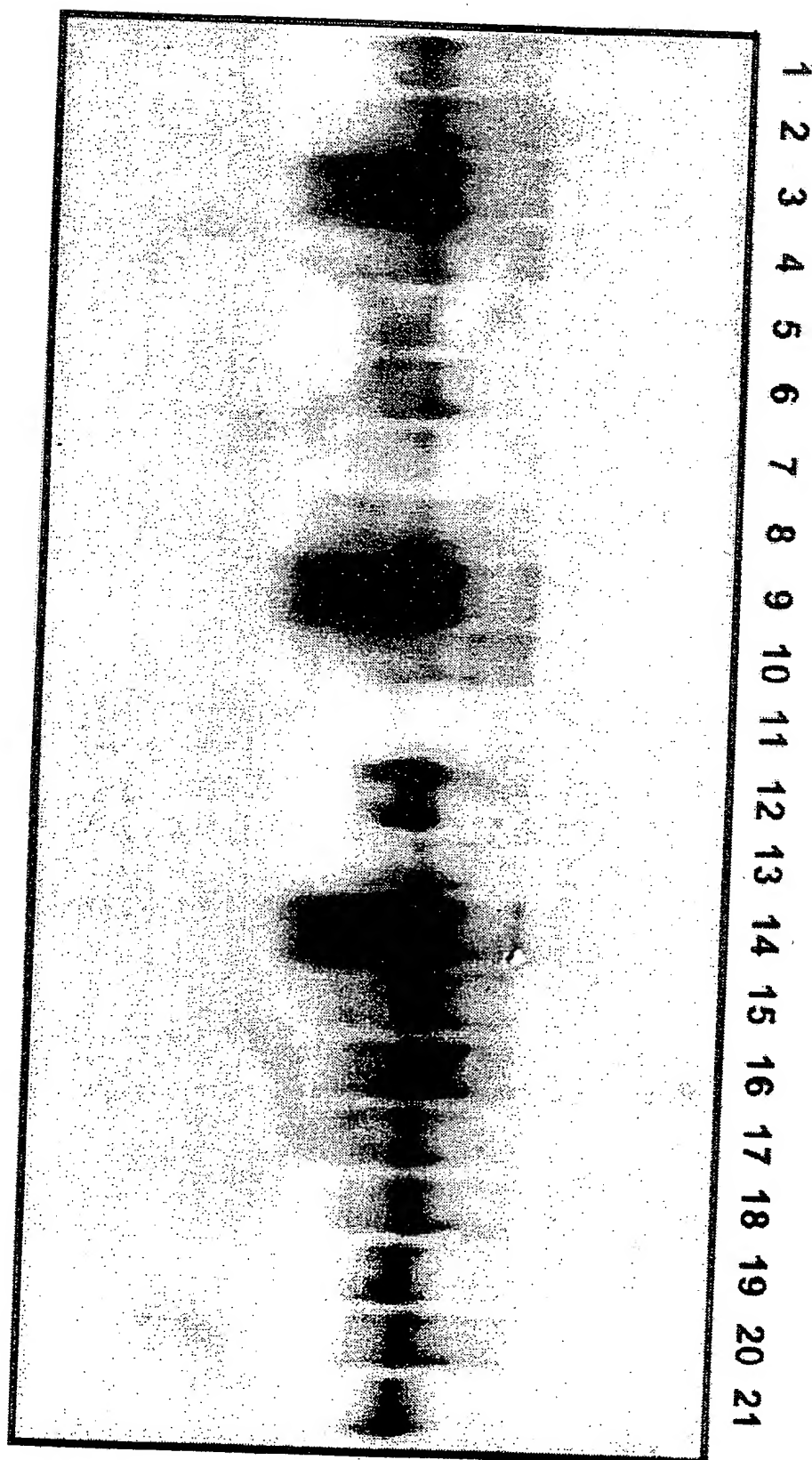


FIG. 8A

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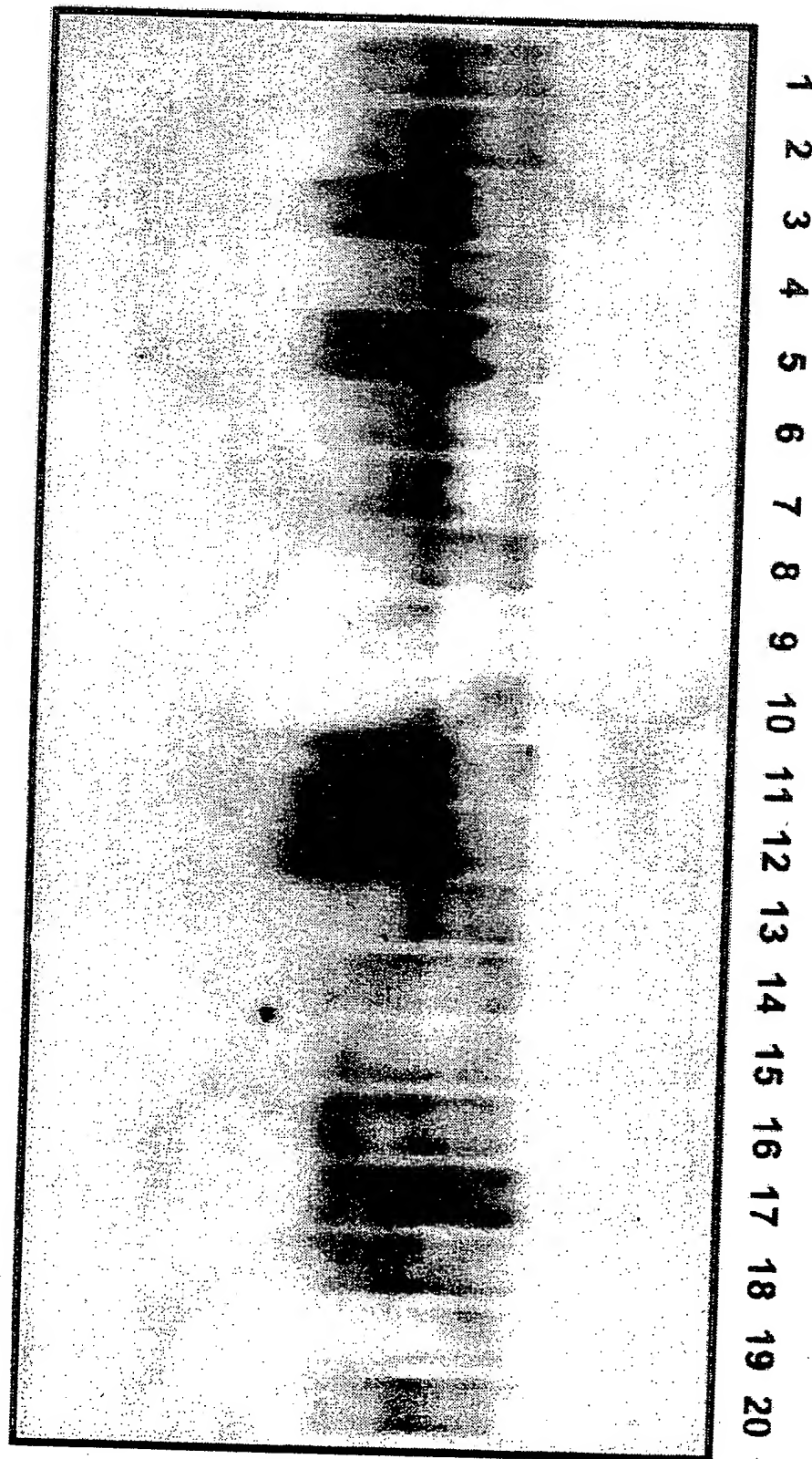


FIG. 8B

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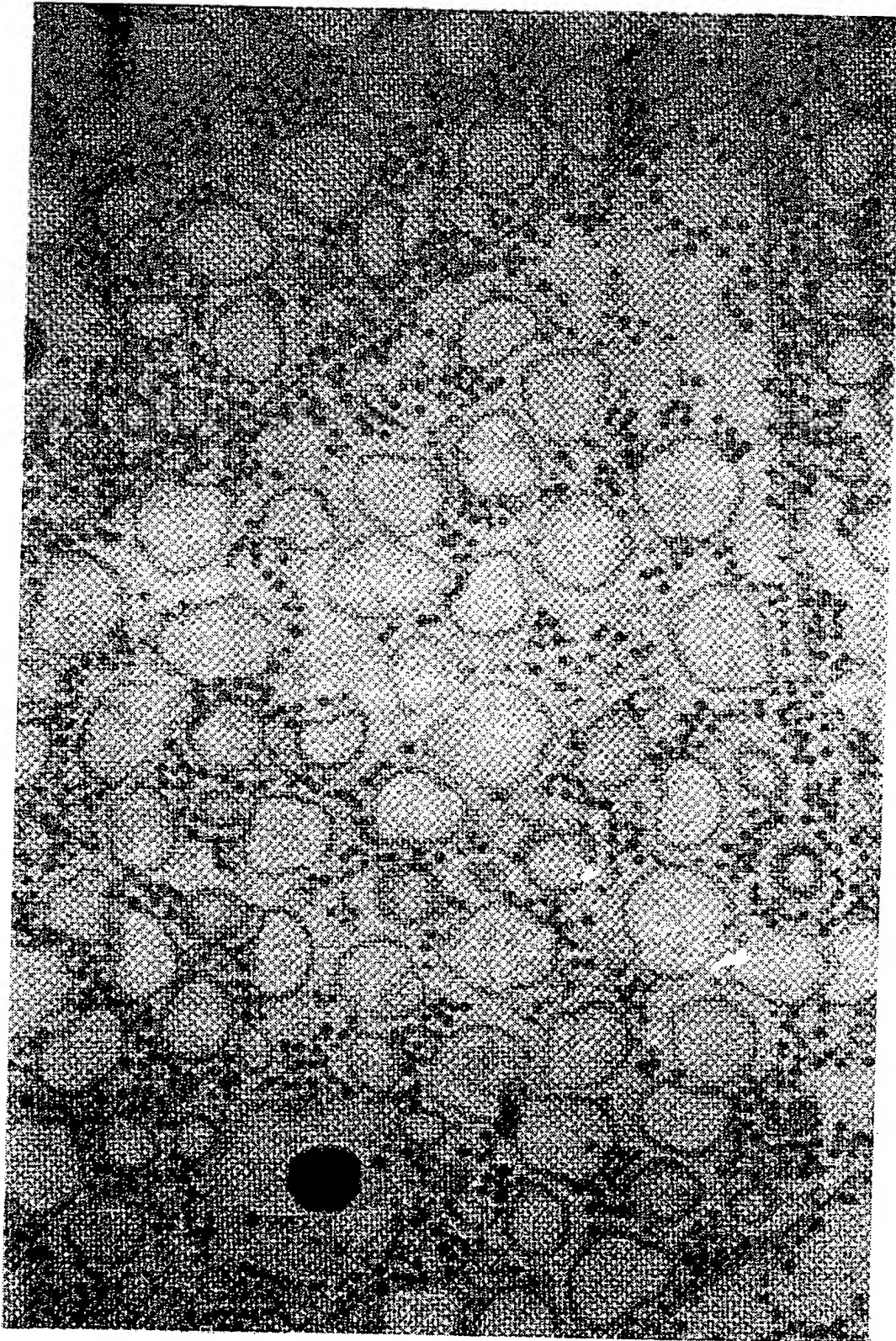


FIG. 9A

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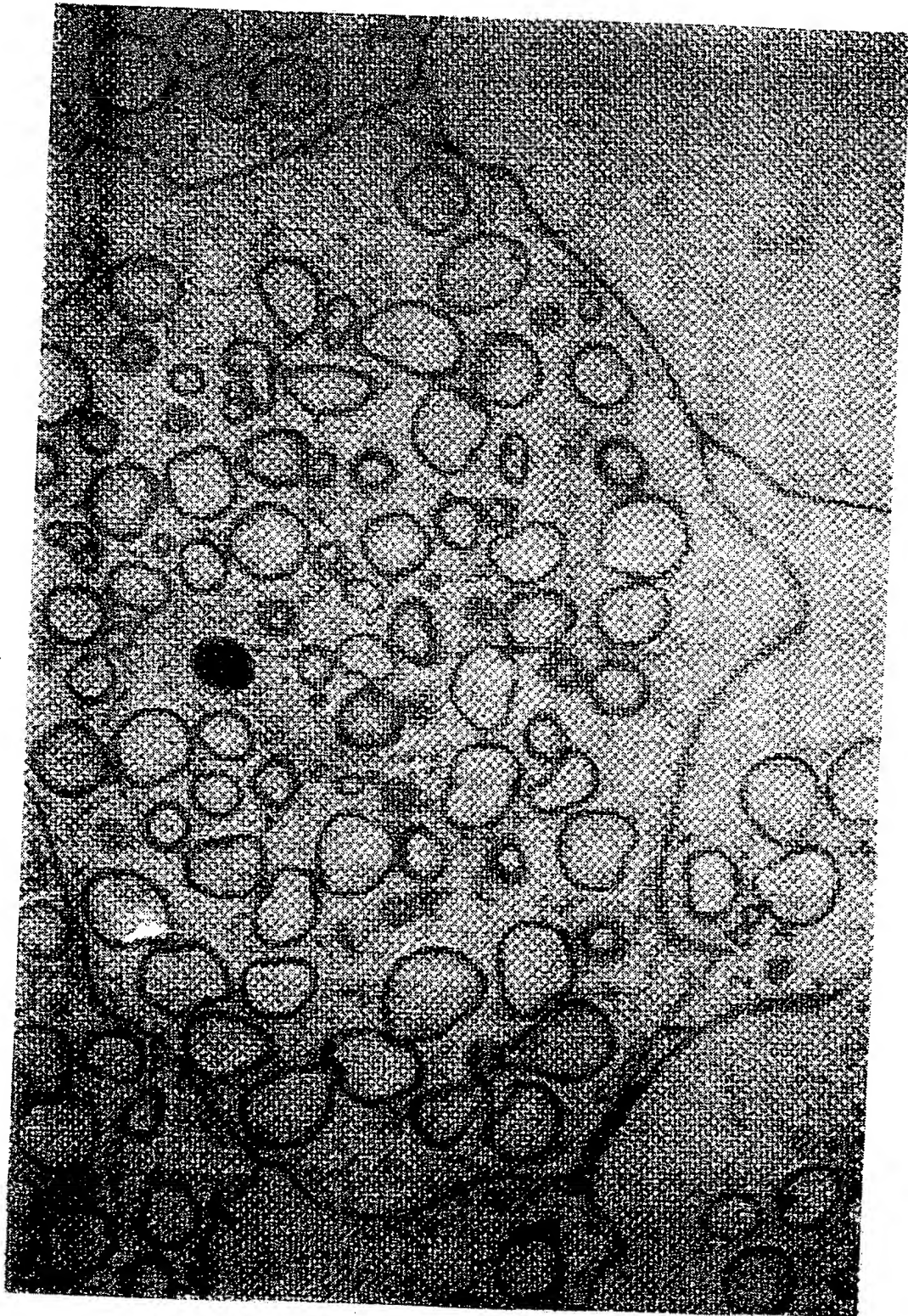


FIG. 9B

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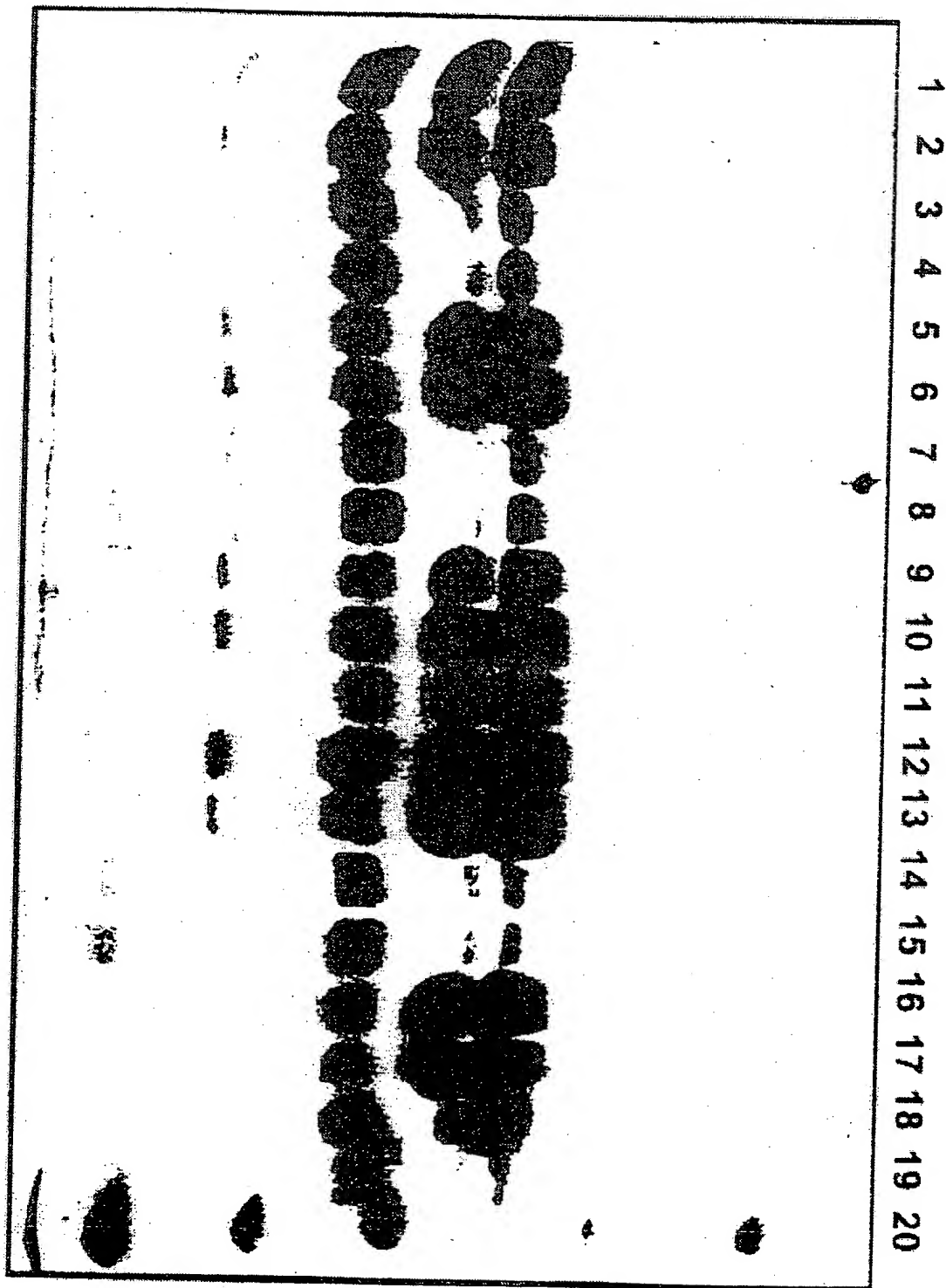


FIG. 10